

WHAT IS CLAIMED IS:

1. A die, comprising:
  - a lower block portion having an upper face, a front face, and a rear face, the upper face defining a first cavity therein;
  - an impact plate juxtaposed on the top surface of the lower block and having an impacting surface facing away from the lower block and a swaging surface facing toward the upper surface of the lower block, the swaging surface defining a second cavity therein configured to cooperate with the first cavity to form a swaging cavity, the impact plate being moveable toward and away from the lower block to vary the volume of the swaging cavity;
  - a front plate configured to mount to the front face of the lower block and having one or more travel stops designed to limit the relative travel of the impact plate with respect to the lower block;
  - a rear plate configured to mount to the rear face of the lower block and having one or more travel stops designed to limit the relative travel of the impact plate with respect to the lower block.
2. The die of claim 1, wherein the impact plate is biased away from the lower block.
3. The die of claim 2, further comprising a coil spring disposed between the impact plate and the lower die.
4. The die of claim 1, wherein the swaging cavity has a tapered portion and a cylindrical portion.
5. The die of claim 4, wherein the tapered portion has an included angle within the range of from about .05 degrees to about 3.0 degrees.
6. The die of claim 22, wherein the die is formed of stainless steel that has been heat treated to a hardness of about 64 HRC.
7. A swaging die, comprising:

a lower portion and an upper portion, each of the lower portion and upper portion configured with a cavity that cooperate when juxtaposed on top of one another to form a swaging cavity configured to swage a marker band onto a catheter.

8. The die of claim 7, further comprising biasing means between the lower portion and upper portion to bias the upper portion away from the lower portion.

9. The die of claim 7, further comprising a front portion defining an inlet opening and a rear portion defining an exit opening.

10. The die of claim 9, wherein each of the front portion and rear portion further define travel stops that extend above the upper portion and limit the maximum distance between the upper portion and the lower portion.

11. The die of claim 10, wherein the maximum distance between the upper portion and lower portion is about .025 inches.

12. The die of claim 7, wherein the swaging cavity is a compound cavity having a tapered portion and a substantially cylindrical portion.

13. The die of claim 12, wherein the tapered portion has an included angle within the range of about 0.90 to about 1.15 degrees.

14. The die of claim 7, wherein the lower portion and the upper portion are formed of stainless steel.

15. The die of claim 7, wherein the lower portion carries mounting pins extending from an upper face thereof, and the upper portion has corresponding holes formed therein to receive the mounting pins.

16. The die of Claim 7, wherein the upper portion has a throw of from about .001 inches to about .025 inches.

17. The die of Claim 7, wherein the upper portion and lower portions are configured to remain substantially parallel during use.

18. A method of swaging a marker band onto a catheter, comprising the steps of:  
providing a die comprising a first block and a second block, wherein each block defines a cavity and the cavities cooperate to form a swaging cavity, and wherein the swaging cavity gradually tapers from a first diameter to a second diameter;

providing a marker band and a catheter;

placing the marker band and catheter into the swaging cavity;

varying the distance between the first block and the second block to vary the volume of the swaging cavity, thereby applying a swaging force and swaging the marker band onto the catheter; and

advancing the marker band and catheter through the die.

19. The method of Claim 18, further comprising the step of forcefully impacting the first block to force it against the second block.

20. The method of Claim 19, further comprising the step of biasing the first block away from the second block.